

WHAT IS CLAIMED IS:

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1. An interactive voice response system comprising:
 - an application server having application logic and information stored thereon, said application logic for defining at least one voice response application;
 - a communication device for establishing at least one connection with said application server, wherein said application server communicates said application logic to said communication device responsive to one of said established connections; and
 - a processor connected to said communication device to execute said communicated application logic and locally administer said at least one voice response application.
 2. The system of claim 1 further comprising:
 - a data network interface in communication with said application server for retrieving information responsive to said at least one voice response application locally administered at said communication device.
 3. The system of claim 2 wherein said data network is the Internet.
 4. The system of claim 1 wherein said communication device establishes at least one connection with another application server responsive to said information retrieved by said application server, said another application server having another application logic stored thereon defining at least one other voice response application for execution on said communication device.

5. The system of claim 1 further comprising:
translation logic for converting said retrieved information and applications into a format compatible with said application logic.
6. The system of claim 1 wherein said application server divides said at least one voice response application into one or more selectively-sized, executable sub-modules, wherein said size is selected responsive to memory limitations of said communication device.
7. The system of claim 6 wherein said communication device obtains one of said one or more sub-modules for execution.
8. The system of claim 7 wherein said communication device obtains a next one of said one or more sub-modules after completing execution of said one sub-module.
9. The system of claim 1 further comprising:
a user interface disposed on said communication device for accepting input from a user responsive to said at least one voice response application.
10. The system of claim 9 wherein said at least one voice response application prompts said user to input information in one or more formats chosen from the group comprising:
dual tone multiple frequency (DTMF);
speech; and
text.

SUBA' > 11. The system of claim 10 wherein said processor processes said user input locally according to said at least one voice response application.

12. The system of claim 11 further comprising voice recognition logic.

13. The system of claim 12 wherein said voice recognition logic is speaker dependent.

14. The system of claim 12 wherein said voice recognition logic is speaker independent.

SUBA' > 15. The system of claim 12 wherein said voice recognition logic is disposed permanently on said communication device.

16. The system of claim 15 wherein said voice recognition logic is downloaded to said device from said application server.

SUBA' > 17. The system of claim 12 wherein said voice recognition logic is disposed on said application server and wherein said voice recognition logic receives digital voice packets from said communication device.

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18. The system of claim 9 further comprising:

an audio transducer disposed on said communication device for playing aural segments to said user in accordance with the operation of said at least one voice response application; and

5 a display disposed on said communication device for presenting visual information to said user in accordance with the operation of said at least one voice response application.

19. The system of claim 18 wherein said aural segments comprise digitized voice files.

20. The system of claim 18 wherein said aural segments comprise text messages converted to speech at said communication device.

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21. The system of claim 18 wherein information responsive to said at least one voice response application is presented on said communication device according to a set of preferences preselected by said user.

22. The system of claim 21 wherein a set of potentially responsive information is downloaded to said communication device with said application logic.

23. The system of claim 22 wherein said responsive information is obtained from said application server when said set of potentially responsive information is not responsive to said at least one voice response application.

24. The system of claim 23, wherein said responsive information obtained from said application server is located on one of said application server and said data network.

25. The system of claim 9 wherein said communication device uses a packet switching network to connect to said application server.

SUB A' 26. The system of claim 9 wherein said communication device initiates said application server connection over a voice connection and receives said information and application logic over a data connection.

27. The system of claim 26 wherein said voice connection comprises a circuit switched network and said data connection comprises a packet switched network.

28. The system of claim 9 wherein said communication device communicates with said application server using a blended voice and data network.

29. The system of claim 1 wherein said communication device is chosen from the group comprising:

- a mobile phone;
- a hand-held computer;
- a landline phone;
- a desktop computer; and
- a data network phone.

SUB A' 30. The system of claim 1 wherein said application logic comprises VoiceXML.

31. A method for providing an interactive voice response application to a user on a communication unit comprising the steps of:

establishing an initial connection between said communication unit and a multimedia server;

5 transmitting software code defining said interactive voice response application to said communication unit;

executing said software code on said communication unit to run said interactive voice response application; and

10 providing information to said user responsive to requests made pursuant to said interactive voice response application.

32. The method of claim 31 further comprising the step of:
retrieving said information responsive to said requests.

33. The method of claim 32 wherein said communication unit retrieves said responsive information from a set of information downloaded with said software code.

34. The method of claim 33 wherein said communication unit retrieves said responsive information from said multimedia server.

35. The method of claim 34 wherein said multimedia server obtains said responsive information from one of an internal database and a data network.

36. The method of claim 35 further comprising the step of:
converting said responsive information into a format compatible with said interactive voice response application.

37. The method of claim 31 wherein said transmitting step further comprises the step of:

dividing said software code into selectively-sized segments responsive to a memory capacity of said communication unit.

38. The method of claim 31 further comprising the step of:
receiving input from said user responsive to voice messages played by said interactive voice response application.

39. The method of claim 38 wherein said input is chosen for a group comprising:
voice input;
dual tone multiple frequency (DTMF); and
text input.

40. The method of claim 39 further comprising the step of processing said voice input.

41. The method of claim 40 wherein said voice processing is done by said communication device.

42. The method of claim 40 wherein said voice processing is done by said multimedia server.

43. The method of claim 42 wherein said voice processing is speaker dependent.

44. The method of claim 42 wherein said voice processing is speaker independent.

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45. The method of claim 34 further comprising the step of:
reestablishing a subsequent connection between said communication unit and said multimedia server to retrieve said responsive information.

46. The method of claim 37 further comprising the step of:
downloading a next selectively-sized segment after execution of said transmitted segment.

47. The method of claim 31 wherein said initial connection is implemented over a data network.

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48. The method of claim 31 wherein said initial connection is implemented over a voice network and said transmitting step is implemented over a data network.

52. The method of claim 49 wherein said communication is established using a combination of a voice network and a data network.

53. A system for implementing an interactive voice response application on a communication device comprising:

a central server in communication with a data network;

extensible application code disposed on said central server, said code defining an interactive voice response application;

memory disposed on said communication device for storing a copy of said extensible application code, wherein said communication device downloads said copy from said central server using said data network; and

a processor disposed on said communication device for running said copy of said extensible application code and administering said interactive voice application substantially independent from said central server.

54. The system of claim 53 wherein said interactive voice application provides information responsive to requests made in administering said interactive voice application.

55. The system of claim 54 wherein said responsive information is provided from information downloaded with said copy of said extensible application code.

56. The system of claim 54 wherein said communication device communicates with said central server to obtain said responsive information.

57. The system of claim 56 wherein said central server retrieves said responsive information from an internal memory location.

58. The system of claim 56 wherein said central server retrieves said responsive information from said data network.

59. The system of claim 58 further comprising:
conversion code disposed on said central server to convert responsive information retrieved from said data network into a format compatible with said interactive voice application.

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60. The system of claim 53 further comprising voice processing logic to process input spoken by a user into said communication device.

61. The system of claim 60 wherein said voice processing logic is disposed on said communication device.

62. The system of claim 61 wherein said communication device transmits said input to said central server using a data connection.

63. The system of claim 60 wherein said voice processing logic is speaker dependent.

64. The system of claim 60 wherein said voice processing logic is speaker independent.

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65. The system of claim 53 further comprising:

application management software disposed on said central server for dividing said extensible application code into selectively-sized sub-modules, wherein said selected size is determined from memory limitations of said communication device.

66. The system of claim 65 wherein said communication device downloads a next sub-module after completing execution of a current sub-module.

67. The system of claim 53 wherein said communication device initiates said download of said copy by communicating with said central server using a voice network.

68. The system of claim 54 further comprising:
a connection resource for connecting a user to an agent responsive to said requests made in administering said interactive voice application, wherein said connection allows live voice communication between said user and said agent.

69. The system of claim 68 wherein said connection resource connects said user and said agent using one of said data network and a voice network.

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70. The system of claim 68 wherein said connection resource connects said user and said agent using a combination of said data network and a voice network.

1. A computer program product defining an interactive multimedia response application for use on a communication device, said computer program product comprising:

at least one function for operation of said interactive multimedia response application corresponding to a predefined set of at least one desired application feature;

a multimedia display driver for processing multimedia information for presentation to a user;

application logic for providing multimedia information to said multimedia display driver for presenting user prompts according to operation of said at least one function; and multimedia input interface for processing multimedia input.

72. The computer program product of claim 71 wherein said multimedia display driver comprises:

an audio media player for presenting audio files to said user; and
a graphical driver for presenting visual information on a display of said communication device.

73. The computer program product of claim 72 wherein said multimedia display driver further comprises a speech synthesizer for converting text information to speech for presentation to said user.

74. The computer program product of claim 71 wherein said multimedia input interface comprises:

a dual tone multiple frequency (DTMF) interface for accepting DTMF input signals from said user;

5 a voice processor for receiving voice input from said user; and

a data interface for receiving text input from said user.

75. The computer program product of claim 74 wherein said voice processor comprises speaker dependent voice processing.

76. The computer program product of claim 74 wherein said voice processor comprises speaker independent voice processing.

1. The first group of people who are not in the majority are the people who are not in the majority.

77. A method for providing an interactive voice response application to a user on a communication unit comprising the steps of:

launching a connection between said communication unit and a multimedia server;

downloading application code defining said interactive voice response application to

5 said communication unit; and

running said application code on said communication unit to execute said interactive voice response application so that said user can have a voice response interactive session controlled, at least in part, by said downloaded application code.

78. The method of claim 77 further comprising the step of:

retrieving said information responsive to said voice response interactive session.

79. The method of claim 78 wherein said communication unit retrieves said responsive information from one of a database internal to said communication unit and a database external to said communication unit.

80. The method of claim 77 wherein said connection between said communication unit and said multimedia server comprises a data socket connection.

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81. A method for obtaining multimedia information on a communication device using a locally administered interactive voice application, said method comprising the steps of:

actuating said communication device to initiate an interactive voice response session;

receiving application logic into said communication device to locally administer said
5 interactive voice response session;

observing multimedia prompts on said communication device provided by said
interactive voice response session;

providing said interactive voice response session multimedia input responsive to said
observed multimedia prompts, wherein said multimedia input is processed by said
10 communication device; and

observing multimedia information on said communication device provided by said
interactive voice response session responsive to said processed multimedia input.

82. The method of claim 81 wherein said multimedia prompts comprise one of aural
segments presented over an audio transducing mechanism of said communication device and
visual information presented using a visual display of said communication device.

83. The method of claim 81 wherein said multimedia prompts comprise a
combination of aural segments presented using an audio transducing mechanism and visual
information presented using a visual display.

84. The method of claim 81 wherein said multimedia input is chosen from the group comprising:

speech;

dual tone multiple frequency (DTMF) signals; and

5 text.

85. The method of claim 81 wherein said multimedia information comprises one of aural segments presented over an audio transducing mechanism of said communication device and visual information presented using a visual display of said communication device.

86. The method of claim 81 wherein said multimedia information comprises a combination of aural segments presented using an audio transducing mechanism and visual information presented using a visual display.

87. The method of claim 81 further comprising the step of retrieving said multimedia information responsive to said multimedia input.

88. The method of claim 86 wherein said multimedia information is retrieved from a database local to said communication device.

89. The method of claim 86 wherein said multimedia information is retrieved from a database external to said communication device when said information contained in said local database is not responsive to said multimedia input.

90. The method of claim 81 further comprising the step of storing said multimedia information onto said communication device to provide access to said multimedia information substantially independent from said interactive voice response session.

91. The method of claim 81 further comprising the step of selectively forwarding said multimedia information to another communication device.

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